2015 WILD TURKEY PRODUCTIVITY SURVEY

Overview

Since 2010, the Delaware Division of Fish and Wildlife has used a volunteer-based survey to record observations of wild turkeys across the state during the months of July and August. The primary purpose of this survey is to generate an index of annual turkey productivity and recruitment, expressed as the ratio of observed poults per hen. In addition, data will be used to track the health and distribution of the of the turkey population, as well as, evaluate potential regional differences in reproductive success within Delaware.

Participants were asked to record observations of turkeys in the months of July and August during the course of their daily activities. Using a Division-provided data sheet, participants recorded the date and number of gobblers, hens, and poults seen during each observation (Figure 1). If the participant was unable to distinguish age/sex of the birds, they were recorded as 'unknown'. Effort was made to instruct observers to avoid documenting multiple encounters with the same flock or brood of birds during the survey period. Participants were also asked to record the Turkey Management Zone (TMZ) in which each encounter occurred; Delaware is divided into 18 TMZs (Figure 2).

Results

A total of 31 participants submitted 182 observations during the two-month survey period (Table 1). The number of observations recorded for each zone varied considerably, ranging from no observations (TMZs 13 and 16) to a high of 64 observations (TMZ 7; Table 1). A total of 1,192 turkeys were counted, including 519 poults and 374 hens.

To generate a turkey productivity index, the average number of poults per hen was calculated for each TMZ (Table 2). Two ratio estimates were generated for each TMZ, one that calculated poults:hen based on all hens observed in each TMZ and a second ratio of poults:brood hen which incorporated only observations of hens with broods. The poults:hen ratio provides a more conservative estimate of productivity because it incorporates observations of hens without broods, and it is possible an observer failed to detect poults that were present with a hen. Conversely, the poults:brood hen ratio may inflate productivity values by excluding observations of hens without poults. Taken together, these two productivity estimates provide a range of values for each TMZ.

Using the more conservative poults:hen estimate, productivity index values ranged from a low of 0.0 (TMZs 1A, 3, 8, and 14) to a high of 3.2 (TMZ 12), with a statewide estimate of 1.7±0.2. Using the poults:brood hen ratio, estimates ranged from a low of 0.0 (TMZs 1A, 3, 8, and 14) to a high of 6.0 (TMZ 4), but with a statewide estimate of 3.0±0.3 poults per brood hen. The difference in the range of values using those two estimating methods illustrates the variability in the number of brood hens observed in each zone (Table 2), and was likely an artifact of having a small sample size of observations for a given zone, rather than some zones having exceptionally high or low recruitment.

While the use of brood counts is considered a valuable, cost-effective method to measure productivity and recruitment into the fall population, little formal research has been done to quantify/qualify the relationship between an index value and annual production and recruitment. However, it is generally considered that a productivity index value of ≥ 3.0 represents a 'fair to good' production/recruitment season (B. Eriksen, National Wild Turkey Federation, personal communication). Given the statewide estimates calculated using either productivity estimate, production appears to have been poor to fair for the 2015 nesting season. Using the poults:hen estimate, which is likely the more useful of the two metrics, productivity appears to have declined since the survey began in 2010 (Figure 1) and was lower (but not statistically different) than the previous year. However, it is important to note that small sample size and the uneven distribution of observations may limit the accuracy of these estimates. Weather conditions in Spring 2015 were not necessarily favorable for nesting/brooding as significant precipitation events occurred during the first week of June (2.48 inches of rain on 1-2 June; Dover, DE-SFS Station) when nests were likely hatching. Total rainfall estimates for June 2015 were 8.16 inches (Dover, DE-SFS) which likely contributed to nest failure and negatively impacted poult survival in 2015.

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DELAWARE DIVISION OF FISH AND WILDLIFE
WILD TURKEY OBSERVATION SURVEY FORM
SURVEY PERIOD: JULY 1 – AUGUST 31

OBSERVER INFORMATION	INSTRUCTIONS
Name:	• Each time you see turkeys, record the date, county, and number of adult hens, poults (young of the year), & adult gobblers. Record ALL turkeys seen, not just broods. Use additional sheets if necessary. • Please record the turkey management zone in which your observation was made. REFER TO INCLUDED MAP. • AVOID REPORTING DUPLICATE SIGHTINGS (e.g. if you see the same number of hens and poults in the same location several days in a row, only record once). • If you cannot determine sex or age, record them in "UNKNOWN" column – that information is still important. • Either mail, fax, or email the survey by September 10 to: Matt DiBona, Delaware Division of Fish and Wildlife 6180 Hay Point Landing Road Smyrna, DE 19977 Fax: 302-653-6755 Email: Matthew.DiBona@state.de.us
Address:	
Phone:	
Email:	

DATE (month/day)	COUNTY	TURKEY MGMT ZONE	NUMBER OF TURKEYS OBSERVED (Record ALL turkeys seen, not just broods)			
		(refer to map)	HENS	POULTS	GOBBLERS	UNKNOWN

Figure 1. Wild turkey observation survey form.

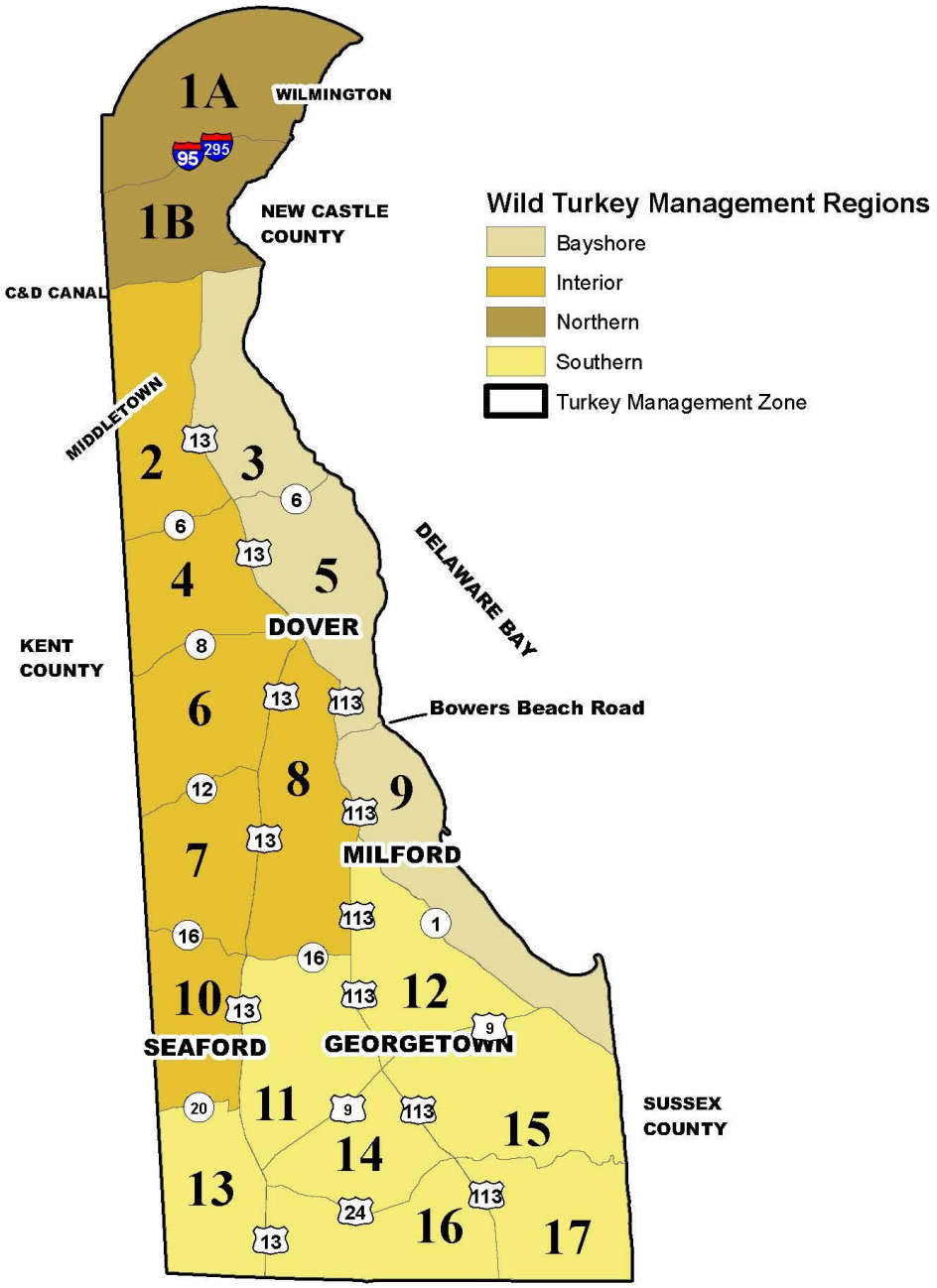

Figure 2. Wild turkey management zones in Delaware

Table 1. Summary of reported turkey observations for each Turkey Management Zone (TMZ) collected from 1 July to 31 August 2015 in Delaware.

TMZ	# of obs.	# of hens	# of poults	# of gobblers	# of unk.	Total # of birds
1A	1	3	0	0	0	3
1B	1	1	2	0	0	3
2	32	59	110	3	35	207
3	2	0	0	1	1	2
4	8	16	21	0	13	50
5	12	22	32	6	8	68
6	15	23	27	8	33	91
7	64	188	215	110	24	537
8	7	9	0	10	6	25
9	2	4	10	2	0	16
10	9	3	8	12	8	31
11	3	9	25	0	0	34
12	8	17	37	3	2	59
13	0	-	-	-	-	-
14	1	0	0	0	1	1
15	4	4	11	1	5	21
16	0	-	-	-	-	-
17	13	16	21	3	4	44
All	182	374	519	159	140	1192

Table 2. Average number of poults per hen and poults per brood hen (hen with brood) for each Turkey Management Zone (TMZ) collected from 1 July to 31 August 2015 in Delaware. Observations of poults without hens were not included.

TMZ	# of obs.[a]	Total # of hens	Total # brood hens	Total # of poults	Poults/hen	Poults/brood hen	
1A	1	3	0	0	0.0	0.0	-
1B	1	1	1	2	2.0	2.0	
2	22	59	48	106	2.1	2.7	
3	0	0	0	0	0.0	0.0	
4	6	16	1	6	1.0	6.0	
5	9	22	17	32	2.2	2.4	
6	7	23	9	27	1.5	2.6	
7	52	188	112	215	1.5	3.0	
8	3	9	0	0	0.0	0.0	
9	1	4	4	10	2.5	2.5	
10	2	3	2	8	2.0	4.0	
11	3	9	8	25	1.9	2.9	
12	6	17	10	37	3.2	3.8	
13	-	-	-	-	-	-	
14	0	0	0	0	0.0	0.0	
15	2	4	4	11	2.2	2.2	
16	-	-	-	-	-	-	
17	8	16	7	20	1.5	3.9	

[a] sightings with only gobblers observed are not included

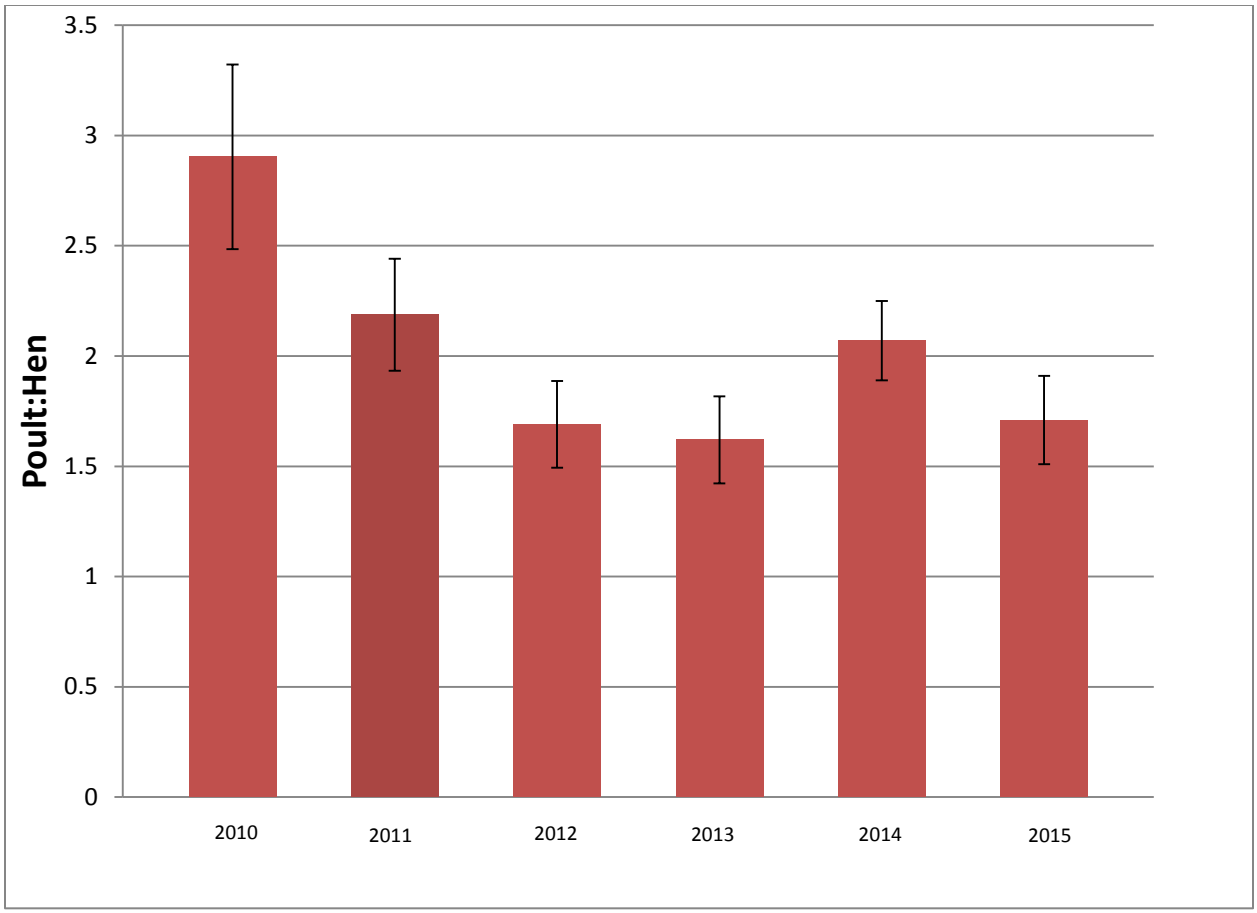

Figure 1. 2010-2015 Statewide estimates of wild turkey poults:hen in Delaware, USA